

HYBRID MICROELECTRONIC ARRAY STRUCTURE  
HAVING ELECTRICALLY ISOLATED SUPPORTED ISLANDS,  
AND ITS FABRICATION

ABSTRACT OF THE DISCLOSURE

5           A hybrid microelectronic array structure is fabricated from a readout  
integrated circuit array of microelectronic integrated circuits and a supported array  
of supported islands. The supported islands include one or more supported  
elements, with a respective supported element for each of the readout integrated  
circuits. The supported array is made by depositing the first semiconductor region  
10       onto a supported substrate and depositing the second semiconductor region onto  
the first semiconductor region, and defining supported islands as electrically  
isolated segments. On each supported element, a first interconnect is formed to  
the first semiconductor region and a second interconnect is formed to the second  
semiconductor region. The supported array is joined to the readout integrated  
15       circuit array by an interconnect structure, preferably a bump interconnect  
structure, to form the hybrid microelectronic array structure, with each readout  
integrated electrically interconnected to the respective one of the supported  
elements.